



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION III
Four Penn Center – 1600 John F Kennedy Blvd
Philadelphia, Pennsylvania 19103-2852

Report Title: Clean Air Act Inspection of Multi-Flex Plating Company.
Inspection Date(s): 8/23/2022
Regulatory Program(s): CAA NESHAP, MACT

Company Name: Multi-Flex Plating Company.
Facility Name: Multi-Flex Plating Company.
Facility Location: 109 Willows Avenue,
Collingdale, PA 19023

Latitude: 39.90773 **Longitude:** -75.28308
County/Parish: Delaware

AFS Number: PA000571673
Permit Number: N/A
NAICS Code: 332813 **SIC:** 3471
Unique Project #: 3E22CA023A

Facility Representatives:	Point of Contact
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Alexis Davis, President	<input type="checkbox"/>
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EPA Inspectors:
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State/Local Inspectors:
Jim Layton, Inspector, PADEP
Phone: 215-313-8619 Contact: jalayton@pa.gov

EPA Inspector	
Signature	Parmatma Adhikari Date
	Four Penn Center – 1600 John F Kennedy Blvd (3ED21) Philadelphia, PA 19103-2852
Supervisor	
Signature	Kristen Hall Date

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I. Introduction

The United States Environmental Protection Agency (EPA) conducted a Clean Air Act (CAA) inspection at Multi-Flex Plating Company (Multi-Flex or The Facility) to verify compliance with applicable State and Federal regulations. The Pennsylvania Department of Environmental Protection (PADEP) was notified of the inspection on August 3, 2022, via email. On August 22, 2022, EPA notified the Facility of the planned inspection via phone and email. EPA emailed a list of records for review to David Sugg prior to the inspection (see Attachment 1). These records are listed in the Records Review section of the report.

A. Summary of the Facility

The Facility is located at 109 Willows Avenue, Collingdale, PA 19023. Multi-Flex is a service provider or “job shop” and does not manufacture any parts or products. Multi-Flex engages in electroplating, electroless or non-electrolytic plating and other non-electrolytic metal coating processes. Multi-Flex uses materials that contain metal hazardous air pollutants (HAP) such as Cadmium, Chromium, Cyanide, and Nickel in its various processes. Multi Flex does not use manganese (Mn), lead, or cobalt. Multi-Flex offers a diverse range of finishes for products used in aerospace, defense, medical, and laboratory equipment.

The Facility does not have any Clean Air Act (CAA) Federal or State permits. The Facility is subject to or potentially subject to the following federal regulations.

- 40 CFR 63 Subpart N - National Emission Standards for Chromium Emissions from Hard and Decorative Chromium Electroplating and Chromium Anodizing Tanks
- 40 CFR 63 Subpart WWWW - National Emission Standards for Hazardous Air Pollutants: Area Source Standards for Plating and Polishing Operations

B. Inspection Opening Conference

At 9:00 am on August 23, 2022, EPA inspectors arrived at the Facility for a CAA Inspection and conducted a brief opening conference. Multi-Flex was represented by David Sugg (General Manager) and Alexis Davis (President). Also, Jim Layton from PADEP was present. EPA inspectors, Bruce Augustine and Parmatma Adhikari, presented their credentials and explained the purpose of the visit was to conduct an inspection to determine compliance with any applicable state or federal regulations. Additionally, EPA informed the facility representatives of their right to claim any material obtained during the inspection as confidential business information (CBI). At that time, Mr. Sugg did not claim any photos or documentation as CBI, and he returned the provided CBI form.

II.Site Activity/Process Description

Multi-Flex is a family-owned company that has been operating at this location since March 2002. The company was founded in January 1968 in Clifton Heights, Pennsylvania, and the relocation to the current location began in 2001 and was completed in 2002. Multi-Flex typically operates a single shift, 10 hours a day, Monday through Thursday, with an occasional 6 hour shift on a Friday. and the Facility employs 17 full-time employees and operates in a building that is 26000 square feet. However, 2000 square feet of that space is leased to Liberty Spring Company. Major customers of Multi-Flex are Eaton Aerospace, Honeywell, Neilson Engineering Hardware Solutions. Mr. Sugg mentioned that the Facility's primary function used to be cadmium plating. Currently, chemical conversion encompasses the majority of the jobs being completed, with zinc plating or anodizing also being popular.

Multi-Flex receives the raw materials/parts from the customer in the shipping and receiving area. Most of the parts received by the Fedex or UPS and occasionally customers drop off the parts directly at the Facility. Multi-Flex has four types of processes: Electroplating, Anodizing, Passivation and Chemical Conversion (Chromate Conversion Coating or Alodine). Cadmium plating (electroplating) starts with cleaning parts with an alkaline rinse followed by three stages of rinse with city water, then electro cleaner with an alkaline solution and two steps of counter flow rinse with city water. Next, the parts are cleaned with 50% hydrochloric acid and rinsed twice with city water. After that, the components are processed using lead-steel or cadmium plate alternatives. Finally, after plating, the parts are washed with city water and rinsed in hot DI water.

The anodize process begins with an alkaline rinse of the parts, followed by multiple cleaning stages with city water and weak acid. Following that, the components are anodized with either sulfuric acid or chromic acid. Multi-Flex used hexavalent chromium in the chromic acid anodizing process. Similarly, Chromate Conversion coating begins with an alkaline solution cleaning, followed by water and weak acid washing stages. The parts are then processed using chromate conversion coating or casting alternatives. Following the completion of the coating process, the parts are cleaned with city water and hot DI water.

The passivation process also starts with an alkaline cleaner of the parts, followed by several cleanings with city water and 50% hydrochloric acid. The parts are then passivated using various alternatives (dichromate, nitric or citric) as customer specification. Then parts are cleaned with city water after the coating process is completed.

The anodizing, chemical film line, passivation electroless Nickel, and stripping process lines are equipped with a vent that pulls air from the tanks and vents it through a stack to the atmosphere. This is not considered a control device since no removal of pollutants occurs, it simply conveys any pollutants to the outside. Multi-Flex uses a wetting agent/ chemical fume suppressant, HCA Non-PFOS Fume Control (Concentrated Non-PFOS Fume Suppressant for Chrome Solutions) to control hazardous air pollutant emissions (chromium emission) from the chromic acid anodizing tank. The chromic acid tank (N18) is the only tank that uses the wetting agent to control emissions.

Multi-Flex uses five identical natural gas-fired boilers, each rated at 195000 Btu/hr (0.195 MMBtu/hr). The boilers provide heat for process water in processes that require heating. The combustion emissions from the boilers are not controlled and are vented to the atmosphere. Multi-Flex has a 500-amp rectifier to supply current to the chromate tank. Multi-Flex also uses five electric baking ovens of various size. Multi-Flex does not operate any additional combustion devices, such as emergency generators, fire pumps etc. Multi-Flex also does not have any underground storage tanks.

The various processes result in the production of supernatant, mostly water with cyanide, chromium, and other chemicals; that is collected in Tank 4 (T-4) after primary treatment (reduction of chromium and cyanide). Prior to being sent to the clarifier, Multi Flex adjusts the pH. The clarifier removes solid matter (components) from wastewater, which is sent to a filter press before being shipped offsite to Enviroline. Following the clarifier step, the wastewater is routed through a sand filter before being discharged to a sanitary sewer. Multi Flex monitors and adjusts the pH prior to discharge to the sewer.

The opening conference concluded at 10:20 am.

III. Observations

EPA inspectors were led on a walkthrough of the Facility at 10:20 am by Mr. Sugg of Multi-Flex. Jim Layton of PADEP was also present for the walkthrough. EPA inspectors noted photos would be taken during the Facility walkthrough (Attachment 2).

The inspection team began their walkthrough by exiting the conference room and walking toward the process area. The inspection team first observed the boiler room located near the process control lab room. Mr. Sugg explained that each of boiler works as heat exchanger, by heating water in a noncontact system that circulates water from the boilers to the process tanks and back. Emissions from the boilers are vented to the atmosphere without any control. The boilers can provide about 175°F hot water for the process.

Mr. Sugg then led EPA and PADEP representatives to the plating process area. The inspection team observed the Cadmium plating line, also known as D-line. The process is based on the

principle of passing a current through cadmium metal. A Multi-Flex employee was observed immersing parts in one of the tanks. For cadmium plating, multi-Flex uses various tank sizes and Mr. Sugg stated that the majority of the tanks are over 20 years old. The inspection team then observed the A-line, the mirror image of the D-line. EPA observed Tank A-8, bright acid zinc tank, and Tanks A-18 and A-12, bright nickel plating and cyanide tanks.

Next, the inspection team observed the Passivation process in E-Line. The majority of the Passivation process is completed in the E-line, but the Nitric acid (HNO_3) and Citric acid ($\text{C}_6\text{H}_8\text{O}_7$) alternatives are completed in the L-line. Tank E-8 is dedicated to dichromate passivation, whereas tanks L-8 and L-11 are dedicated to nitric acid and citric acid passivation, respectively. After the passivation process is completed, the parts are cleaned in N-line with city water.

The inspection team proceeded to the chemical conversion or chromate conversion process (Line- L). The process is divided into two lines: line 1 uses hexavalent chromium (yellow color), and line 2 uses trivalent chromium. Mr. Sugg then led the inspection team to Line-N (Anodizing). Multi-Flex uses sulphuric acid (H_2SO_4) or chromic acid (H_2CrO_4) as an anodizing alternative. Tanks N-7 and N-9 are designed for sulphuric acid anodizing, while tank N-18 is designed for chromic acid anodizing. Following the anodizing process, the parts are further processed for dye or seal alternatives. Nickle acetate or Dichromate are used as sealant alternatives. Multi-Flex uses the tanks N-12, N-14, N-15, N-17, N-25, and N-30 for anodize dye alternatives. To control the chromic emission from the chromic acid anodizing process, Multi-Flex uses a wetting agent/chemical fume suppressant in a chromic acid tank (N-18). Mr. Sugg stated that multi-Flex laboratory personnel measure surface tension and check the concentration of chromium trioxide (CrO_3). The surface tension in Tank N-18 is measured on the day of operation (not every day), but the CrO_3 concentration is measured on a weekly basis.

The walkthrough continued to the wastewater treatment plant (WWTP). Mr. Sugg mentioned that wastewater containing cyanide and non-cyanide chemicals are collected in the separate tank. Concentrated batch treatment process solutions are collected in a 500-gallon intermediate tank and another 1000-gallon black tank where the pH is adjusted. The intermediate tank is vented to the atmosphere. After pH adjustment, the liquid is sent to the clarifier, which separates the liquid and solid components. Following the clarifier step, the wastewater is routed through a sand filter before being discharged to a sanitary sewer. After the filter press, solid elements are collected in the drum as hazardous waste and stored in the chemical storage area before being shipped offsite to Envirite. Multi-Flex monitors and adjusts the pH before discharge to the sewer. The Facility estimated the wastewater discharge to be 14-17k GPD (gallon per day).

The inspection team then observed the oven area. Multi-Flex uses five varying capacity ovens (one of which was out of service at the time of inspection) to pre and post heat the specific products. Mr. Sugg stated that the oven can heat up to 375°F and material can be remain in the

oven for 1.5 hours to 24 hours, depending on the customer specifications and plating requirements (specification).

The inspection team walked through the parts shipping and receiving area and past the x-ray lab and process control lab rooms. The x-ray room was not inspected due to safety concerns. The inspection team then observed the main chemical storage area. According to Mr. Sugg, Multi-Flex maintains all chemicals, including hazardous waste, in the same building. However, only raw materials used in the process, such as hydrochloric acid (HCL) and nitric acid (HNO₃), cadmium oxide etc., were stored at the time of the inspection. Finally, the inspection team observed a 500-amp rectifier used to provide the current for chromate conversion process. Mr. Sugg stated that although the capacity of the rectifier is 500 amp, only a maximum of 250 amp is used during the process.

The walkthrough concluded at 11:20 am.

IV. Records Review

The records review commenced immediately after walkthrough at 11:20 am. EPA inspectors reviewed documents requested in the August 22, 2022, email to David Sugg (see Attachment 1). Records were provided at the time of the inspection by David Sugg, and EPA requested the submission of additional records electronically. Below are the records requested and what was provided:

1. Plot plan of the Facility, which details the process and emissions points
⇒ *Multi-Flex provided the plot plan of the facility in printed form at the time of inspection.*
2. Copy of any current Clean Air Act (CAA) operating permit (Title V or state-only) and all installation/construction permits issued to the Facility.
⇒ *Multi-Flex stated that no CAA federal or state permits have been issued to the facility.*
3. Copies of any initial notifications, annual compliance certificates for hazardous air pollutants, or any Notification of Compliance Status submitted to either PADEP or EPA for any regulations under 40 CFR Part 60, 61, or 63.
⇒ *Multi-Flex stated that the information does not apply to the Facility. Multi-flex is unaware of any regulations under 40 CFR Part 60, 61, or 63 that may be applicable.*

4. Amount of HAP and VOC emitted monthly for the previous 24 months, provide calculations and emission factors used to calculate emissions.
⇒ *Multi-Flex indicated that they have not been required to provide these records by PADEP and have not calculated HAP and VOC emissions.*
5. List of all air pollution control devices. Please include make, model, control/removal efficiency, and installation date.
⇒ *Multi-Flex does not utilize any air pollution control device. However, in the chromic acid tank (N-18), Multi-Flex uses a wetting agent/chemical fume suppressant.*
6. Cumulative hours of operation per day for each process associated with the Facility.
⇒ *Multi-Flex didn't provide the cumulative hours of operation per day for each process, but it did provide the Facility's hours of operation.*
7. List of the materials stored or handled on site that contain 0.1% or greater by weight of cadmium, chromium, or lead as reported on the respective MSDS sheets.
⇒ *Multi-Flex provided the list of the process chemicals containing cadmium or chromium.*

In addition to the above-mentioned information, Multi-Flex provided the Chromic anodize analysis excel sheet, which contains surface tension and CrO₃ concentration, during the inspection.

V. Closing Conference

After the records review, the EPA inspection team, David Sugg, Alexis Davis, and Jim Layton (PADEP) had a brief closing conference to discuss observations and next steps. The EPA inspectors noted that the investigation is on-going, and any areas of concern identified in the final reports do not necessarily reflect a violation or deviation, rather, they are areas that will require further investigation. EPA also noted that they would issue an inspection report within in 60 days, with a copy to the State. Simultaneously, EPA will perform a detailed review of records and may have additional questions. The inspection concluded at 12:05 pm.

The following have been identified as *potential* issues during the inspection. They are issues that require either further investigation by EPA or additional information or explanation by Multi-Flex.

- EPA noted that the Facility emits hazardous air pollutants to the atmosphere and does not have a CAA permit from PADEP. EPA indicated that Multi Flex consider contacting

PADEP through the Request for Determination (RFD) process to see if a permit is required based on their process and potential emissions.

1. Multi Flex is potentially subject to the regulations at 40 C.F.R. Part 63, Subparts N and WWWW. Multi Flex representatives stated that they are not aware of any initial notifications, periodic reports, or notifications of compliance status that may have been submitted to EPA or PADEP pursuant to these regulations.

VI. List of Attachments

Attachment 1: Photo Log

Attachment 2: Email correspondence to David Sugg of records requested to review during inspection

ATTACHMENT 1: PHOTO LOG

Facility: Multi Flex Plating Company

Location: 109 Willows Avenue, Collingdale, PA 19023

Inspection Date: 8/23/2022

EPA Inspector(s): Bruce Augustine & Parmatma Adhikari

Photographer: Bruce Augustine

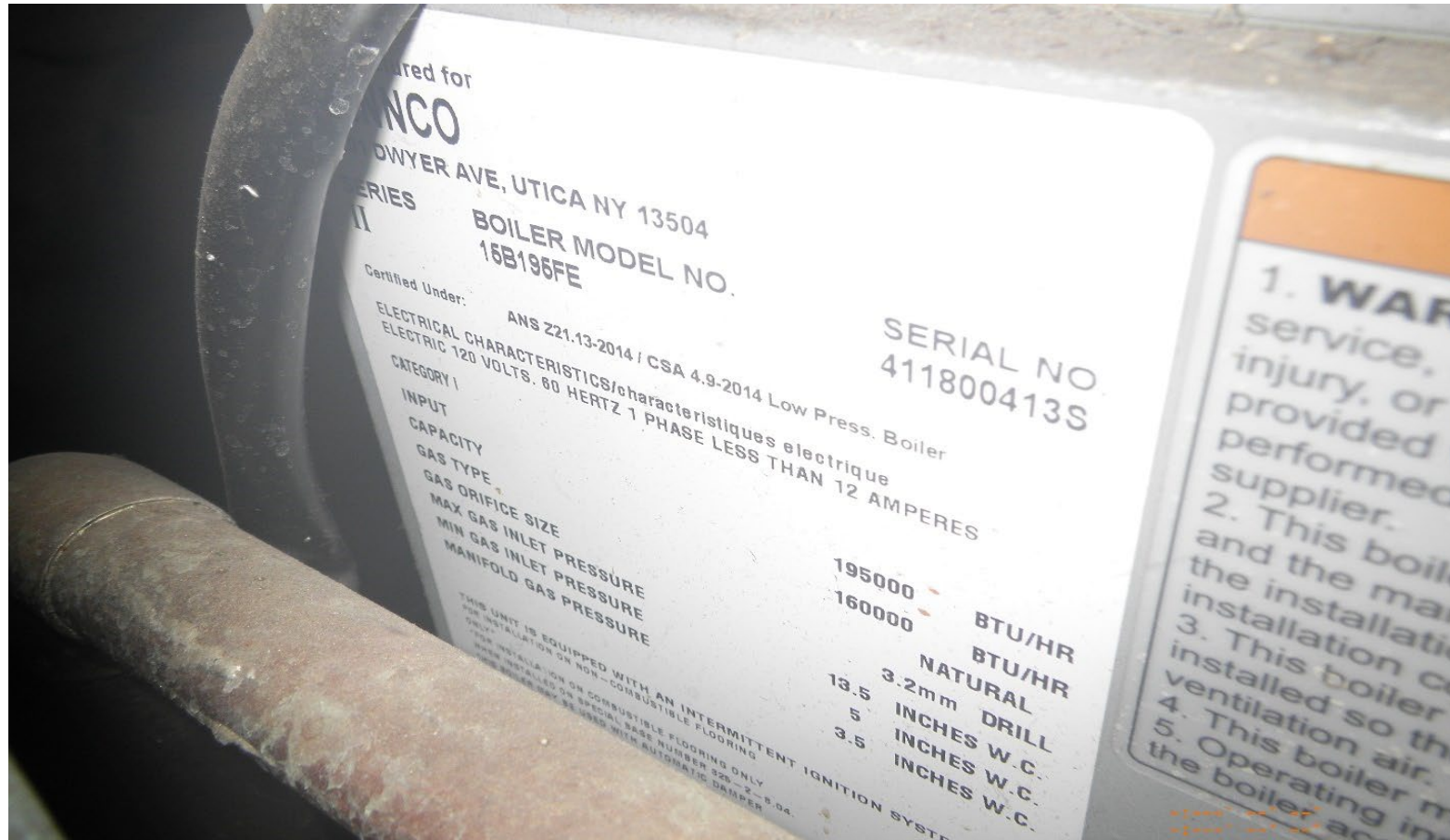


Photo Number: 1

Photo Description: Process Boiler 1 Nameplate – Multi Flex Plating

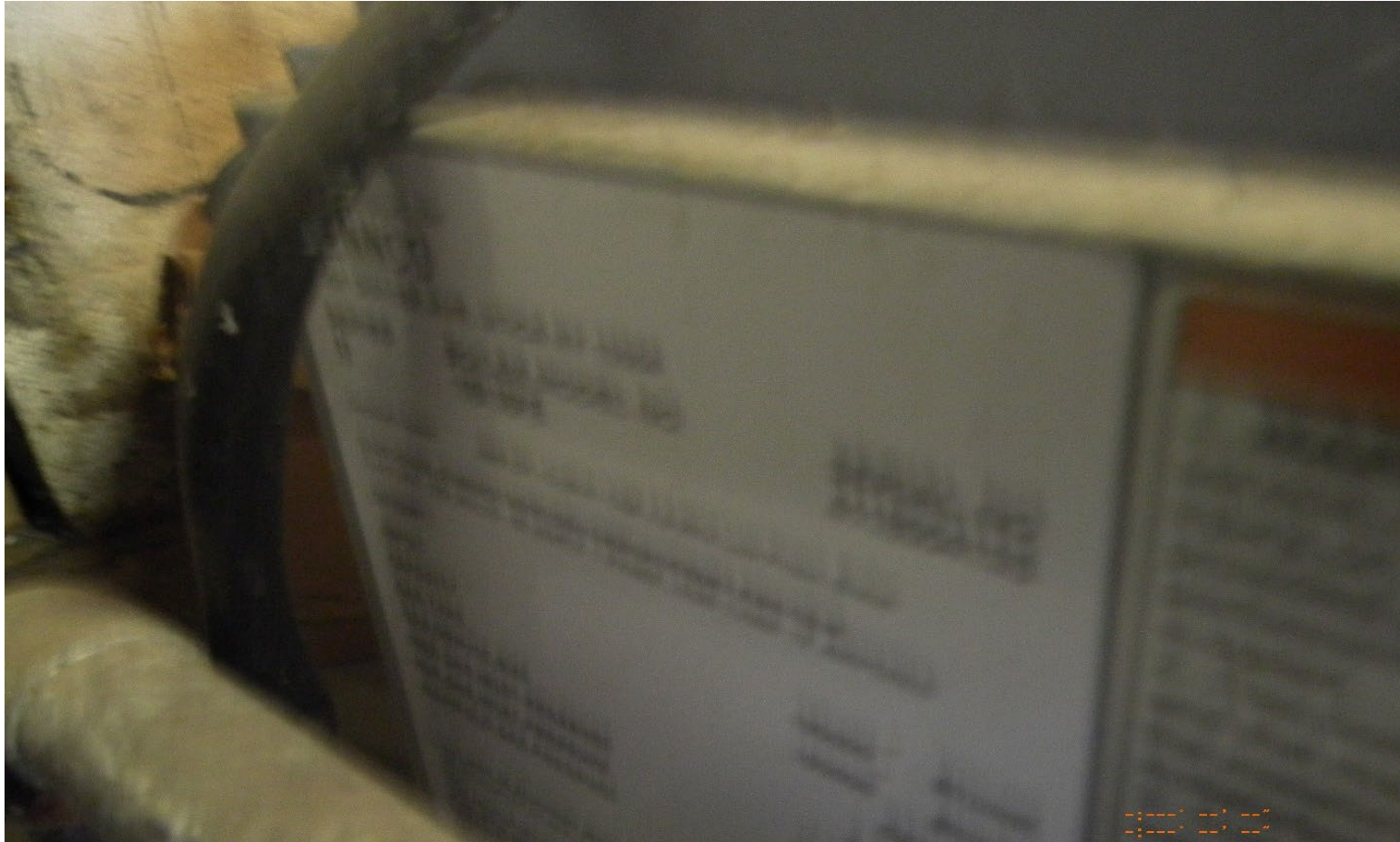


Photo Number: 2

Photo Description: 2nd Photo of Process Boiler 1 Nameplate



Photo Number: 3

Photo Description: Process Boilers 1-5



Photo Number: 4

Photo Description: Cadmium Plating Line



Photo Number: 5

Photo Description: Bright Nickel Plating Tank A-18



Photo Number: 6

Photo Description: Exhaust Hoods for Tanks E12 and E16



Photo Number: 7

Photo Description: Chrome Anodizing Tank N-18

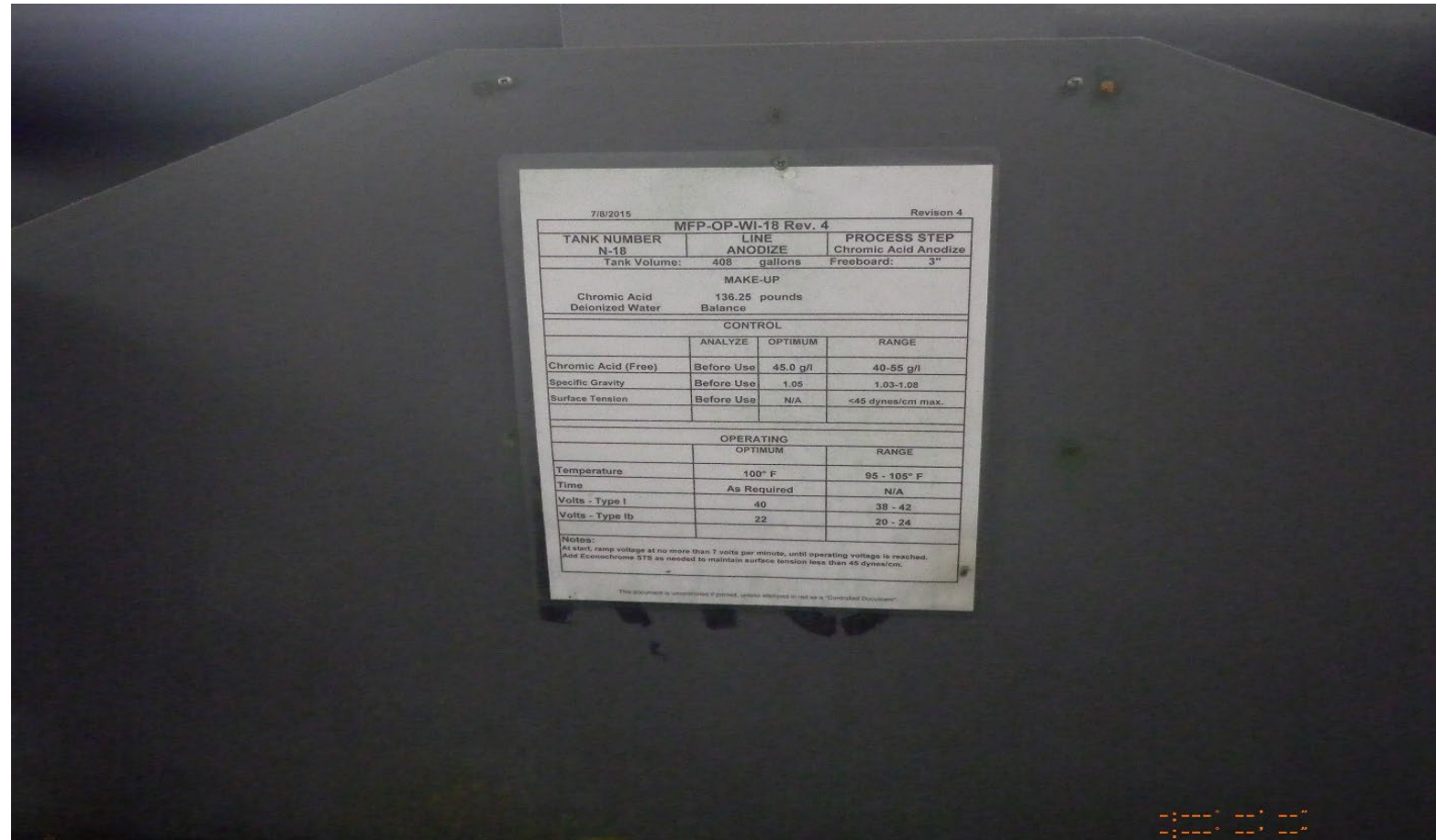


Photo Number: 8

Photo Description: Spec Sheet for Chrome Anodizing Tank N-18



Photo Number: 9

Photo Description: 500 gallon Batch Treatment Tank

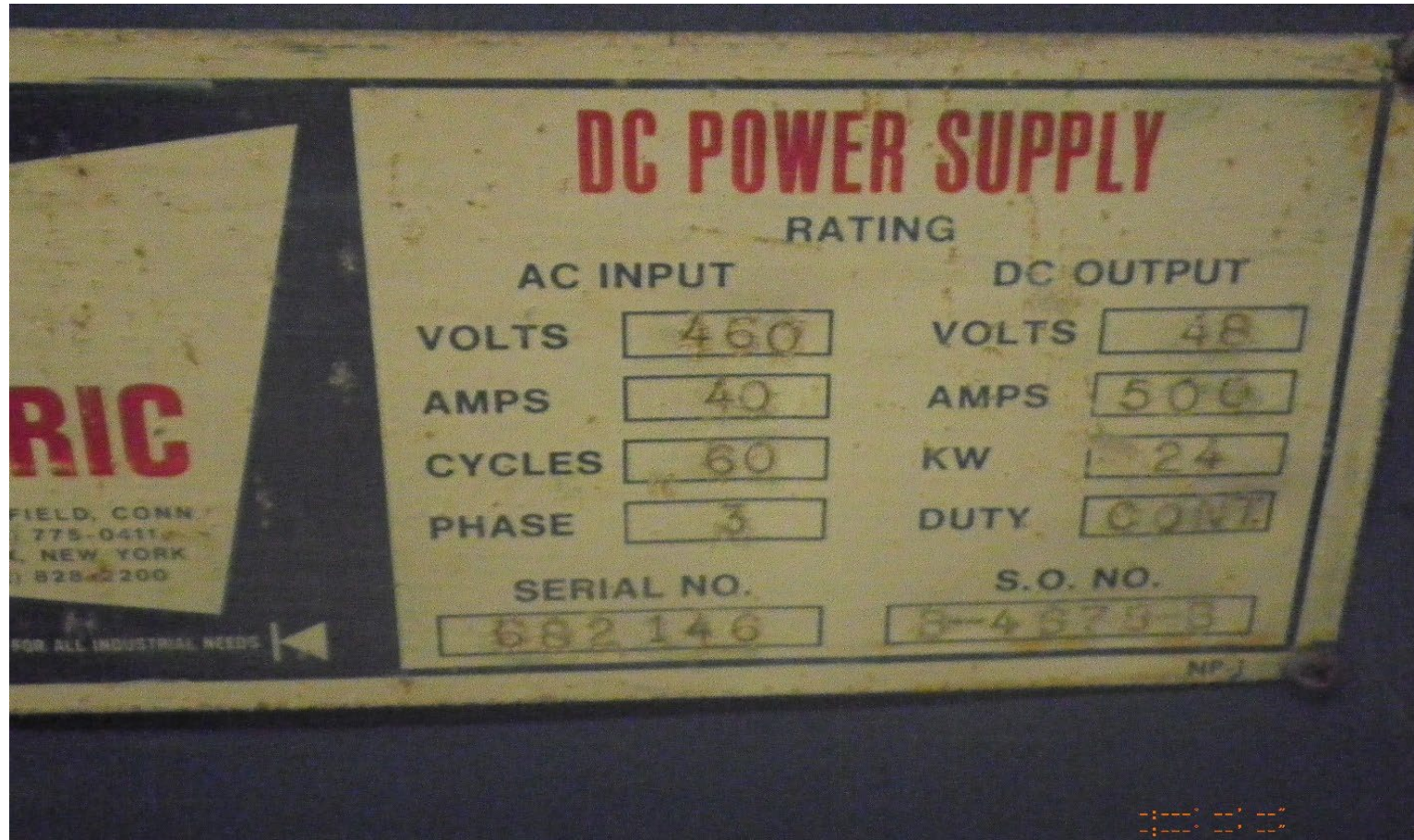


Photo Number: 10

Photo Description: Tank N-18 Rectifier Nameplate

Adhikari, Parmatma

From: Adhikari, Parmatma
Sent: Monday, August 22, 2022 12:19 PM
To: dave.sugg@multiflexplating.com
Cc: Augustine, Bruce; Layton, James
Subject: EPA Inspection of Multi-Flex Plating Company

Hello Dave,

Per our conversation on Friday morning, EPA Region 3 is planning to conduct a Clean Air Act inspection of the Multi-Flex Plating Company located in Collingdale, PA, on August 23, 2022. We will begin the inspection at 9:00 AM. It will be myself and Bruce Augustine from EPA and at least one inspector from PADEP. The inspection will consist of an opening meeting to discuss the facility process, a plant walkthrough, and a brief closing meeting. EPA will also take photographs during the walkthrough. I wanted to confirm that the following PPE is required on-site: Hard hat, safety glasses, and safety shoes.

In an effort to facilitate the inspection, please have copies of the following records available:

1. Plot plan of the Facility, which details the process and emissions points
2. Copy of any current Clean Air Act (CAA) operating permit (Title V or state-only) and all installation/construction permits issued to the Facility.
3. Copies of any initial notifications, annual compliance certificates for hazardous air pollutants, or any Notification of Compliance Status submitted to either PADEP or EPA for any regulations under 40 CFR Part 60, 61, or 63.
4. Amount of HAP and VOC emitted monthly for the previous 24 months, provide calculations and emission factors used to calculate emissions.
5. List of all air pollution control devices. Please include make, model, control/removal efficiency, and installation date.
6. Cumulative hours of operation per day for each process associated with the Facility.
7. List of the materials stored or handled on site that contain 0.1% or greater by weight of cadmium, chromium, or lead as reported on the respective MSDS sheets.

Please let me know if you have any questions.

Thanks!

Parmatma Adhikari

Environmental Engineer
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